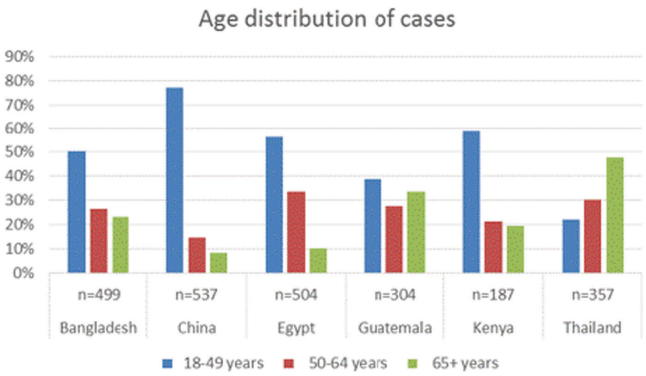
diagnostics enable simultaneous detection of multiple pathogens in respiratory specimens. Characterizing the public health threat of severe acute respiratory infection (SARI) may enhance global health security. We studied potential etiologies of SARI among adults in six countries over a 12-month period using multi-pathogen diagnostics.

Methods. We enrolled SARI cases (acute onset of fever and cough, requiring hospitalization, in an adult) from Global Disease Detection sites in Bangladesh, China, Egypt, Guatemala, Kenya, and Thailand and healthy frequency-matched controls (2 controls: 5 cases) by time (onset), age group (18–49, 50–64, 65+ years), and catchment area. Demographics, clinical data, and nasopharyngeal and oropharyngeal specimens were collected from cases and controls. Specimens were tested for 16 viruses and 14 bacteria using Taqman® Array Card, which uses real-time reverse transcriptase polymerase chain reaction.

Results. We enrolled 2,388 cases and 1,135 controls from Oct 2013 through Oct 2015. Age distribution (Figure) and seasonality varied by site: enrollment peaked in summer months in Bangladesh, Thailand, and China, and in winter months in Egypt, but was stable throughout the year in Guatemala and Kenya. Case fatality rate across all study locations was 2.3% (range 0–7.0%). One or more pathogens was detected in 76% of cases and in 67% of controls; ≥2 pathogens were detected in 42% of cases and 37% of controls. Pathogens more commonly detected among cases than controls included influenza A (OR 13.3, CI 7.0–25.2; 12.8% of cases vs. 1.1% of controls), influenza B (OR: 27.0, CI 8.6–84.8; 8.1% vs. 0.3%), and respiratory syncytial virus (RSV) (OR: 9.4, CI 3.4–25.8; 4.0% vs. 0.4%).

Conclusion. In this SARI study, frequent detection of multiple pathogens in the oro- and nasopharynx of both cases and controls made etiology attribution difficult. Influenza and RSV, however, were likely to be causes of SARI. Because upper respiratory tract specimens may not accurately reflect disease in the lung, better specimens are needed to determine pneumonia etiology, particularly for bacteria.



Disclosures. **All authors:** No reported disclosures.

890. Impact of Antivirals in the Prevention of Serious Outcomes Associated with Influenza in Hospitalized Canadian Adults: A Pooled Analysis from the Serious Outcomes Surveillance (SOS) Network of the Canadian Immunization Research Network (CIRN)

Zach Shaffelburg, BSc[1]; Michaela Nichols, MSc[1]; Lingyun Ye, MSc[1]; Melissa K. Andrew, MD, PhD[1]; Ardith Ambrose, RN[1]; Guy Boivin, MD, MSc[2]; William R. Bowie, MD, FRCPC, FIDSA[3]; Ayman Chit, MBiotech, PhD[4],; Gael Dos Santos, PhD[6]; May Elsherif, MD[1]; Karen Green, MSc, RN[7]; Francois Haguinet, PhD[8]; Scott A. Halperin, MD[1]; Todd Hatchette, MD FRCPC[9]; Barbara Ibarguchi, MSc[10]; Jennie Johnstone, MD[11]; Kevin Katz, MD, CM, MSc, FRCPC[12]; Joanne M. Langley, MD, FRCPC, FSHEA[1]; Jason Leblanc, PhD[1,5]; Philippe Lagace-Wiens, MD[13]; Mark Loeb, MD, MSc[11]; Donna Mackinnon-Cameron, MMath[1]; Anne Mccarthy, MD, MSc[14]; Janet Mcelhaney, MD, FRCPC, FACP[15]; Allison Mcgeer, MD, MSc[7]; Jeff Powis, MD, MSc, FRCPC[16]; David Richardson, MD[17]; Makeda Semret, MD[18]; Vivek Shinde, MD, MPH[19]; Stephanie Smith, MD[20]; Daniel Smyth, MD, FRCPC[21]; Geoffrey Taylor, MD, FSHEA[22]; Sylvie Trottier, MD, PhD[2]; Louis Valiquette, MD, MSc, FRCPC[23]; Duncan Webster, MD[24] and Shelly McNeil, MD, FRCPC, FIDSA[1]; [1]Canadian Center for Vaccinology, IWK Health Centre and Nova Scotia Health Authority, Dalhousie University, Halifax, NS, Canada; [2]Centre Hospitalier Universitaire de Quebec, Quebec City, QC, Canada; [3]Division of Infectious Diseases, Department of Medicine, University of British Columbia, Vancouver, BC, Canada; [4]Leslie Dan School of Pharmacy, University of Toronto, Toronto, ON, Canada; [5]Sanofi pasteur, Toronto, ON, Canada; [6]Business & Decision Life Sciences (on behalf of GSK), Wavre, Belgium; [7]Mount Sinai Hospital, Toronto, ON, Canada; [8]GSK, Wavre, Belgium; [9]Nova Scotia Health Authority, Dalhousie University, Halifax, NS, Canada; [10]GSK Vaccines (Current affiliation Bayer Inc.), Mississauga, ON, Canada; [11]McMaster University, Hamilton, ON, Canada; [12]Department of Infection Control, North York General Hospital, Toronto, ON, Canada; [13]Medical Microbiology, University of Manitoba, Winnipeg, MB, Canada; [14]The Ottawa Hospital, Ottawa, ON, Canada; [15]Health Sciences North Research Institute, Sudbury, ON, Canada; [16]Michael Garron Hospital, Toronto, ON, Canada; [17]William Osler Health System, Brampton, ON, Canada; [18]McGill University, Montreal, QC, Canada; [19]Novavax Vaccines, Gaithersburg, Maryland; [20]Division of Infectious Diseases, Department of Medicine, University of Alberta Hospital, Edmonton, AB, Canada; [21]The Moncton Hospital, Moncton, NB, Canada; [22]Division of Infectious Diseases, University of Alberta Hospital, Edmonton, AB, Canada; [23]Microbiology and Infectious Disease, Université de Sherbrooke, Sherbrooke, QC, Canada; [24]Saint John Regional Hospital, Dalhousie University, Saint John, NB, Canada

Session: 94. Respiratory Infection Diagnosis
Thursday, October 5, 2017: 2:00 PM

Background. Antiviral treatment of influenza in outpatient settings is associated with modest improvement in outcomes but benefit in inpatient settings remains unclear. We assessed the impact of antiviral treatment on the severe outcomes death and intensive care unit (ICU) admission and/or need for mechanical ventilation (MV) in hospitalized influenza patients.

Methods. Patients admitted to hospitals of the CIRN SOS Network with an acute respiratory illness from 2011/12–2013/14 who tested polymerase chain reaction (PCR) positive for influenza were included. Demographic and medical information were obtained from patient interview or the medical chart. Main outcomes of interest were ICU admission and/or need for MV, and death. Logistic regression with backwards stepwise selection was used to estimate odds ratios (ORs) and 95% confidence limits (CIs) for the association between antiviral use and severe outcomes overall, and stratified by time from symptom onset to antiviral start (<48hours, 48hours <5 days, 5–21 days).

Results. Over 3 influenza seasons, 4,679 patients were enrolled; 59% were aged ≥65 years, 52% were female, and 89% had a comorbidity. Influenza vaccination status was available for 4,019 (86%) patients, of whom 1,796 (45%) had received current season vaccine. Of 4,679 patients, 16% of patients were admitted to ICU and/or required MV and 9% died. Overall, 54% of hospitalized influenza patients received an antiviral; mean time from the onset of symptoms to antiviral start was 4.28 days (range: 0–21 days). Treatment with antivirals was associated with a significant reduction in admission to ICU and/or need for MV (OR = 0.10; 95% CI: 0.08–0.13; $P < 0.001$), but was not significantly associated with a reduction in death ($P = 0.454$) irrespective of time between symptom onset and start of antivirals.

Conclusion. In this study, treatment with antivirals in hospitalized patients with influenza was associated with a significant reduction in ICU admission and MV, even when initiated a mean of 4.28 days from symptom onset. Reduction in death was not demonstrated. These findings support current recommendations for antiviral use in hospitalized adults and suggest increased compliance with these guidelines may reduce morbidity and cost.

Disclosures. **M. K. Andrew**, GSK: Grant Investigator, Research grant; Pfizer: Grant Investigator, Research grant; Sanofi-Pasteur: Grant Investigator, Research grant; **A. Chit**, Sanofi pasteur: Employee, Salary; **G. Dos Santos**, GSK: Employee, Salary; Business and Decision Life Sciences (Contractor for GSK Vaccines): Independent Contractor, Salary; **M. Elsherif**, Canadian Institutes of Health Research: Investigator, Research grant; Public Health Agency of Canada: Investigator, Research grant; GSK: Investigator, Research grant; **F. Haguinet**, GSK: Employee, Salary; **S. A. Halperin**, GSK: Scientific Advisor, Consulting fee; GSK: Grant Investigator, Research grant; **T. Hatchette**, GSK: Grant Investigator, Grant recipient; Pfizer: Grant Investigator, Grant recipient; Abbvie: Speaker for a talk on biologics and risk of TB reactivation, Speaker honorarium; **B. Ibarguchi**, GSK: Employee, Salary; **J. M. Langley**, GSK: Investigator, Research grant; Canadian Institutes of Health Research: Investigator, Research grant; **J. Mcelhaney**, GSK: Scientific Advisor, Honorarium to institution; Sanofi pasteur: Scientific Advisor, Honorarium to institution; **A. Mcgeer**, Hoffman La Roche: Investigator, Research grant; GSK: Investigator, Research grant; Sanofi pasteur: Investigator, Research grant; **J. Powis**, Merck: Grant Investigator, Research grant; GSK: Grant Investigator, Research grant; Roche: Grant Investigator, Research grant; Synthetic Biologicals: Investigator, Research grant; **M. Semret**, GSK: Investigator, Research grant; Pfizer: Investigator, Research grant; **V. Shinde**, Novavax: Employee, Salary; GSK: Shareholder, Stocks; GSK: Employee, Salary; **S. Trottier**, Canadian Institutes of Health Research: Investigator, Research grant; **L. Valiquette**, GSK: Investigator, Research grant; **S. McNeil**, GSK: Contract Clinical Trials and Grant Investigator, Research grant; Merck: Contract Clinical Trials and Speaker's Bureau, Speaker honorarium; Novartis: Contract Clinical Trials, No personal renumeration; Sanofi pasteur: Contract Clinical Trials, No personal renumeration

891. Antibiotic Consumption and Antibiotic Resistance Across Organisms, Drugs, and Consumer Groups

Scott Olesen, PhD[1]; Michael Barnett, MD, MS[2]; Derek MacFadden, MD[2]; Marc Lipsitch, DPhil[3]; Yonatan H. Grad, MD, PhD[4]; [1]Immunology and Infectious Disease, Harvard Chan School of Public Health, Boston, Massachusetts; [2]Harvard Chan School of Public Health, Boston, Massachusetts; [3]Harvard School of Public Health, Boston, Massachusetts; [4]Immunology and Infectious Diseases (HSPH) and Division of Infectious Diseases (BWH), Harvard T.H. Chan School of Public Health and Brigham & Women's Hospital, Harvard Medical School, Boston, Massachusetts

Session: 95. Use 'em and Lose 'em: Preventing Antibiotic Overuse
Thursday, October 5, 2017: 2:00 PM

Background. Antibiotic consumption is considered a major driver of antibiotic resistance, but it remains unclear whether the consumption–resistance relationship is apparent for many organisms and drugs, and whether aggregate consumption is the best predictor of resistance.

Methods. We conducted a landscape assessment of the consumption-resistance relationship by comparing a 20% sample of Medicare Part D outpatient antibiotic pharmacy